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Applicant(s): Estep

Docket no. 79493US

Application No.	Filing Date:	Examiner:	Customer No.	Group Art Unit:
09/914,969	September 6, 2001	K. Chang	24628	2675

Invention: Diving Mask with Embedded Computer System

I hereby certify that this Applicant's Reply Brief to Examiner's Answer to Appeal Pursuant to 37 CFR Part 41 and MPEP 1200, and return receipt postcard is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)] on May 16, 2006.

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Eric D. Cohen, Registration No. 38,110
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Applicant's Reply Brief to Examiner's Answer to Appeal Pursuant to 37 CFR Part 41 and MPEP 1200, and return receipt postcard

79493US

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Estep	)
Serial No.: 09/914,969	)
Conf. No. 6639	)
Filed: September 6, 2001	)
For: Diving Mask With Embedded Computer System	)
Examiner: K. Chang	)
Art Unit: 2675	)

CERTIFICATE OF MAILING

I hereby certify that this paper is being deposited with the United States Postal Service as First-Class Mail in an envelope addressed to: Commissioner for Patents, P. O. Box 1450, Alexandria, Virginia 22313, on this date.

May 16, 2006
Date

Eric D. Cohen
Reg. No. 38,110

APPLICANT'S REPLY BRIEF TO EXAMINER'S ANSWER TO BRIEF ON APPEAL PURSUANT TO 37 C.F.R. PART 41 AND M.P.E.P. CHAPTER 1200

Mail Stop Appeal Brief
Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313

Pursuant to the Examiner's Answer mailed April 18, 2006 to Applicant's Brief On Appeal, applicant submits below its Reply Brief in compliance 37 C.F.R. Part 41.

REPLY BRIEF

RESPONSE TO EXAMINER'S ANSWER

I. Claims 1, 15 and 18 Indeed Recite a "Personal Computer"

In response to applicant's Brief On Appeal, the Examiner states that there is "no limitation in the independent claims 1, 15, and 18 claiming a fully functioning personal computer, one that can perform any specific functions such as spreadsheets, word processors, and the like, as argued by applicant on pages 9-10, to differentiate it from the device of Hales."

Applicant respectfully disagrees with the Examiner and points the Examiner to the first line of each independent claim. In that regard, claims 1 and 15 recite "underwater diving mask and personal computer...," while claim 18 recites "a personal-type computer responsive...."

Applicant submits that the definition of a personal computer is ubiquitous in the art and that even one not skilled in the art knows what a personal computer is. One need only type the term "personal computer" into an Internet search engine to reveal tens of thousands of links to articles, advertisements, pictures and the like describing various personal computers. Applicant believes that the term "personal computer," as recited in the claims is sufficient to permit virtually anyone to recognize that such a computer is of the type that ordinarily provides a fully functioning computer capable of running programs of the type the public has come to expect. Such "personal computers" of the type recited in the claims are indeed distinguishable from the dedicated computers or controllers embedded in, for example, microwave ovens and washing machines, which are not accessible to any significant degree by the user, and which are more similar to the computer disclosed in Hales. If this is the crux of Examiner's argument, applicant is more than willing to amend the independent claims to recite "a fully-functioning personal computer" rather than only a "personal computer," as is currently recited in the claims.

II. It Would Not Be Obvious To Use A Personal Computer In Hales

The Examiner appears to have disregarded applicant's arguments presented in its Brief regarding the processor in Hales. The Examiner submits that because Hales includes "a microprocessor and data inputting for performing various functions including display control, data acquisition, data or program downloading" it would have been obvious for one of ordinary skill in the art to choose a portable computer in Hales (Examiner's Answer, pages 6-7).

Hales is a dedicated processor, not a general purpose computer, and the differences between the two are significant. It would be unsafe if the Hales dive computer were a personal computer that gave the diver access to the functions normally provided by a personal computer. The device in Hales happens to contain a computer or processor, as does virtually every electronic device existing today, such as microwave ovens, washing machines and the like, but such devices, including Hales, are not general purpose computers or fully functioning personal computers.

Dive computers, such as the Hales dive computer, are programmed at the surface with specific dive parameters, such as the amount of air and/or mixture and percentages of air and other breathable gases. In this way, the dive computer can correctly calculate and track the body's nitrogen absorption and make calculations to insure safe ascent to the surface. It is significant that once underwater, the diver does not and cannot make any changes to the input. All dive computers are intentionally designed not to accept input from the diver once submerged. This is for safety reasons, and thus the diver cannot induce any errors into the dive computer calculations, which errors could prove life-threatening. The only input accepted from the diver is perhaps to turn on and off the screen backlighting and make adjustment of time presentation to twelve hour or twenty-four hour military time format. The device in Hales is a dedicated electronic device capable of only providing the pre-programmed data specified by the manufacturer.

Thus, the Hales dive computer cannot be considered to be a general purpose computers in any way and further, it would be undesirable at best, and potentially life-threatening at worst to substitute a personal computer for the dedicated computer of Hales. It would be undesirable and make no sense to substitute a personal computer for the dedicated computer in Hales.

III. Valley Teaches Away From A Transducer Located Inside The Diving Mask

The Examiner maintains his rejection on the basis that Valley teaches that it is known to house a sound transducer inside the face mask. Applicant respectfully disagrees with the Examiner's position. Further, the Examiner quotes Valley and states that "Valley clearly pointed out that it is critical to sealingly house the microphone inside of the mask 'without leakage of the surrounding atmosphere into the mask' " and points to Col. 1, lines 22-41 and Col. 3, lines 24-44 of Valley. Applicant notes that Valley does NOT use the text "it is critical to sealingly house the microphone inside of the mask..." and makes no mention of this portion of the Examiner's quoted sentence. Applicant has combed the Valley reference and cannot find this text, and has further downloaded the text in Word format to search electronically but to no avail. Only the second portion of the sentence quoted by the Examiner is found in Valley as Col. 3, lines 37-40 as follows:

> Often these microphones are designed to be located inside of the face mask, which gives rise to problems in leading wires from the microphone to the outside of the mask without leakage of the surrounding atmosphere into the mask.

Valley certainly does not teach or suggest that it is "critical to sealingly house the microphone inside of the mask," as the Examiner states. Valley indeed teaches away from use of the microphone inside the mask because it has been found to be unworkable. Even in the relatively "forgiving" environment of an atmospheric mask, in which Valley exists, placement of a microphone inside the mask is not recommended because of leakage problems associated with wire routing. Such problems are magnified many fold when a mask is subject to underwater conditions. Accordingly, Valley has chosen instead to mount the microphone external to the mask.

The Examiner states on Page 7 of the Examiner's Answer that the rejections are based on the conventional method of housing the transducer inside the face mask disclosed in the background of Valley, rather than the improvement made by Valley. Thus, the Examiner submits that applicant's arguments regarding Valley's teaching away are moot.

This issue certainly is not moot. First, Valley provides no disclosure whatsoever regarding how a transducer is to be mounted inside the atmospheric mask other than to say that prior inventors have not succeeded due to the problems encountered. No details at all are provided, and no such methods or construction are enabled. Second, the Examiner appears to be saying that if something is mentioned in the background, and the improvement does the opposite, then that reference cannot be teaching away from what is taught in the background. This is an absurd result. To teach away from something, the reference first must disclose the "thing" away from which one is teaching. In Valley, of course, it is disclosed that others have attempted (and failed) to place a transducer internal to the mask. Valley's improvement lies in not pursuing those failed paths, but rather, by placing the transducer external to the face mask. Accordingly, Valley teaches away from using a transducer internal to the face mask.

If the Examiner argues that applicant's invention is obvious because the background of Valley discloses that others have attempted internal location of the transducer (and failed), the Examiner should have cited those other references against applicant's claimed invention in support of the rejection, not Valley. As set forth in applicant's Brief on Appeal, a reference teaches away when one of ordinary skill, upon reviewing the reference, would be discouraged from following the path set out in the reference or suggests that the line of development flowing from the disclosure is unlikely to be productive. *Tec Air, Inc. v. Denso Mfg. Michigan, Inc.*, 192 F3d at 1353 (Fed. Cir. 1999). In the present case, the Valley reference discourages use of a

microphone inside the mask due to the wiring problems, and thus teaches away from applicant's claimed invention. Thus, Valley should not support a rejection based on obviousness.

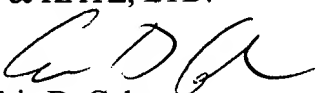
CONCLUSION

In conclusion, applicant submits that the claims 1-18 as presently pending are not obvious over the primary reference to Hales, in view of Larson and Valley, either separately or in combination. To this end, applicant respectfully requests that the Board reverse the decision of the Examiner finally rejecting claims 1-18.

The Commissioner is hereby authorized to charge any additional fee which may be required for this application under 37 C.F.R. §§ 1.16-1.18, including but not limited to the issue fee, or credit any overpayment, to Deposit Account No. 23-0920. Should no proper amount be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 23-0920. A duplicate copy of this sheet(s) is enclosed.

Respectfully submitted,

WELSH & KATZ, LTD.

By 
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IX. APPENDIX - CLAIMS ON APPEAL

1. (previously presented) A combination underwater diving mask and personal computer responsive to voice commands for use by a diver in an underwater diving environment, the diving mask and computer combination comprising:

a viewing portion defined by the diver's face and a lens;

a visual display device proximate the viewing portion to provide visual images to the diver including providing computer output screens;

a water-tight speaking chamber configured to sealingly engage a portion of the diver's face including the diver's mouth to permit the diver to speak while underwater so as to provide voice commands to the personal computer while underwater;

a sound transducer located proximal the speaking chamber;

a computer system disposed in a portion of the mask and operatively coupled to the sound transducer and to the visual display device, the computer system configured to provide the diver with a fully functional personal computer;

the computer system, the viewing portion and the speaking chamber sealingly isolated from the underwater diving environment; and

the computer system receiving electrical signals produced by the sound transducer and configured to recognize and identify the electrical signals as spoken words of the diver, the identified spoken words providing input to the computer; to direct the functions of the computer system so as to process data and provide visual images to the visual display in accordance with the processing of the data in response thereto to facilitate hands-free computer and other operation of the diver.

2. (original) The diving mask of claim 1 wherein the computer system is operatively coupled to the display device such that no wiring or tether external to the diving mask is required.

3. (original) The diving mask of claim 1 wherein the display device is operatively coupled to the computer system by short length of cabling so that no external cabling extends from the diving mask in a region defined by the diver's head portion to a part of the diver located away from the diver's head.

4. (original) The diving mask of claim 1 wherein: the sound transducer is selected from the group consisting of a microphone, crystal microphone, piezoelectric transducer, throat/larynx transducer and vibration transducer;

the computer system is selected from the group consisting of a computer, microprocessor, RISC processor, single-chip computer, single-board computer, controller, micro-controller and discrete logic computer; and

the display device is selected from the group consisting of a liquid crystal display, LED display, electro-fluorescence display, gas plasma display, prism-type optic display, prismatic projection system and cathode ray tube.

5. (original) The diving mask of claim 1 further including non-volatile storage operatively coupled to the computer system, the non-volatile storage is selected from the group consisting of a ROM, PROM, EPROM, flash memory, optical memory, static memory, bubble memory, memory sticks and hard disk memory.

6. (original) The diving mask of claim 1 wherein the computer system further includes a speech recognition portion configured to receive and process the electrical signals from the

sound transducer, and recognize and identify the electrical signals as the spoken words from the diver, and to provide input to the computer system corresponding to the spoken words.

7. (original) The diving mask of claim 1 further including a speech recognition processor operatively coupled to the sound transducer to receive the electrical signals therefrom, and operatively coupled to the computer system, the speech recognition processor configured to recognize and identify the electrical signals as the spoken words from the diver and to provide input to the computer system corresponding to the spoken words.

8. (original) The diving mask of claim 1 wherein the computer system provides a plurality of predetermined functions displayed on the display device, the computer system performing at least one of the predetermined functions in response to the input representative of the spoken words of the diver.

9. (original) The diving mask of claim 1 wherein the computer system provides one or more menus to the display device, each menu containing one or more predetermined functions executable by the computer system.

10. (original) The diving mask of claim 9 wherein the plurality of menus include a hierarchical set of menus.

11. (original) The diving mask of claim 8 wherein the predetermined functions are selected from the group consisting of a menu, pull-down menus, digital camera control applications, life support applications, general purpose applications, gyroscopic/inertial sensor applications, transmitter and receiver applications and power management applications.

12. (original) The diving mask of claim 11 further including a gyroscopic/inertial sensor operatively coupled to the computer system.

13. (original) The diving mask of claim 1 further including

a receiver system operatively coupled to the computer system and configured to receive incoming data from the underwater diving environment;

a transmitter system operatively coupled to the computer system and configured to transmit data to the underwater diving environment; and

the receiver system and transmitter system located proximal the diving mask and sealing isolated from the underwater diving environment.

14. (original) The diving mask of claim 13 wherein the data is selected from the group consisting of speech data, digital data, numerical data and graphical data.

15. (previously presented) A combination underwater diving mask and personal computer responsive to voice commands for use by a diver in an underwater diving environment, the diving mask and computer combination comprising:

a viewing portion defined by the diver's face and a lens;

a display means for providing visual images to the diver including providing computer output screens;

a water-tight speaking chamber configured to sealingly engage a portion of the diver's face including the diver's mouth to permit the diver to speak while underwater so as to provide voice commands to the personal computer while underwater;

a sound transducer located proximal the speaking chamber;

a computer system disposed in a portion of the mask and operatively coupled to the sound transducer and to the display means the computer system configured to provide the diver with a fully functional computer;

the computer system, the viewing portion and the speaking chamber sealingly isolated from the underwater diving environment;

voice recognition means for recognizing and identifying spoken words of the diver; and

the identified spoken words provided to the computer system as input thereto to direct the functions of the computer system so as process data and to provide visual images to the display means in response thereto to facilitate hands-free computer and other operation of the diver.

16. (original) The diving mask of claim 15 wherein the voice recognition means is operatively associated with the computer system and is configured to receive the electrical signals from the sound transducer, the voice recognition means configured to recognize and identify the electrical signals as the spoken words from the diver and to provide input to the computer system corresponding to the spoken words.

17. (previously presented) The diving mask of claim 15 wherein the voice recognition means further includes a voice recognition processor operatively coupled to the computer system and coupled to the sound transducer to receive the electrical signals therefrom, the speech recognition processor configured to recognize and identify the electrical signals as the spoken words from the diver and to provide input to the computer system corresponding to the spoken words.

18. (previously presented) A method of controlling a personal-type computer responsive to voice commands in an underwater diving environment to facilitate hands-free operation of the diver, the method comprising the steps of:

providing the diver with a diving mask having a viewing portion defined by the diver's face and a lens;

placing a visual display device proximate the viewing portion to provide visual images, including computer output screens, to the diver;

incorporating a sound transducer within a water-tight speaking chamber, the speaking chamber configured to sealingly engage a portion of the diver's face including the diver's mouth to permit the diver to speak while underwater;

operatively coupling a personal-type computer system with the sound transducer and the visual display device;

sealingly isolating the computer system, the viewing portion, and the speaking chamber from the underwater diving environment;

speaking while underwater into a sound transducer located proximal the speaking chamber to produce electrical voice command instructions for the computer;

receiving and processing the electrical voice command instructions by the computer system, the computer system recognizing and identifying the electrical signals as spoken words of the diver, the identified spoken words providing input to the computer; and

directing the computer system to provide visual images to the visual display in response to the identified spoken words and the processing of data to facilitate hands-free operation of the diver.